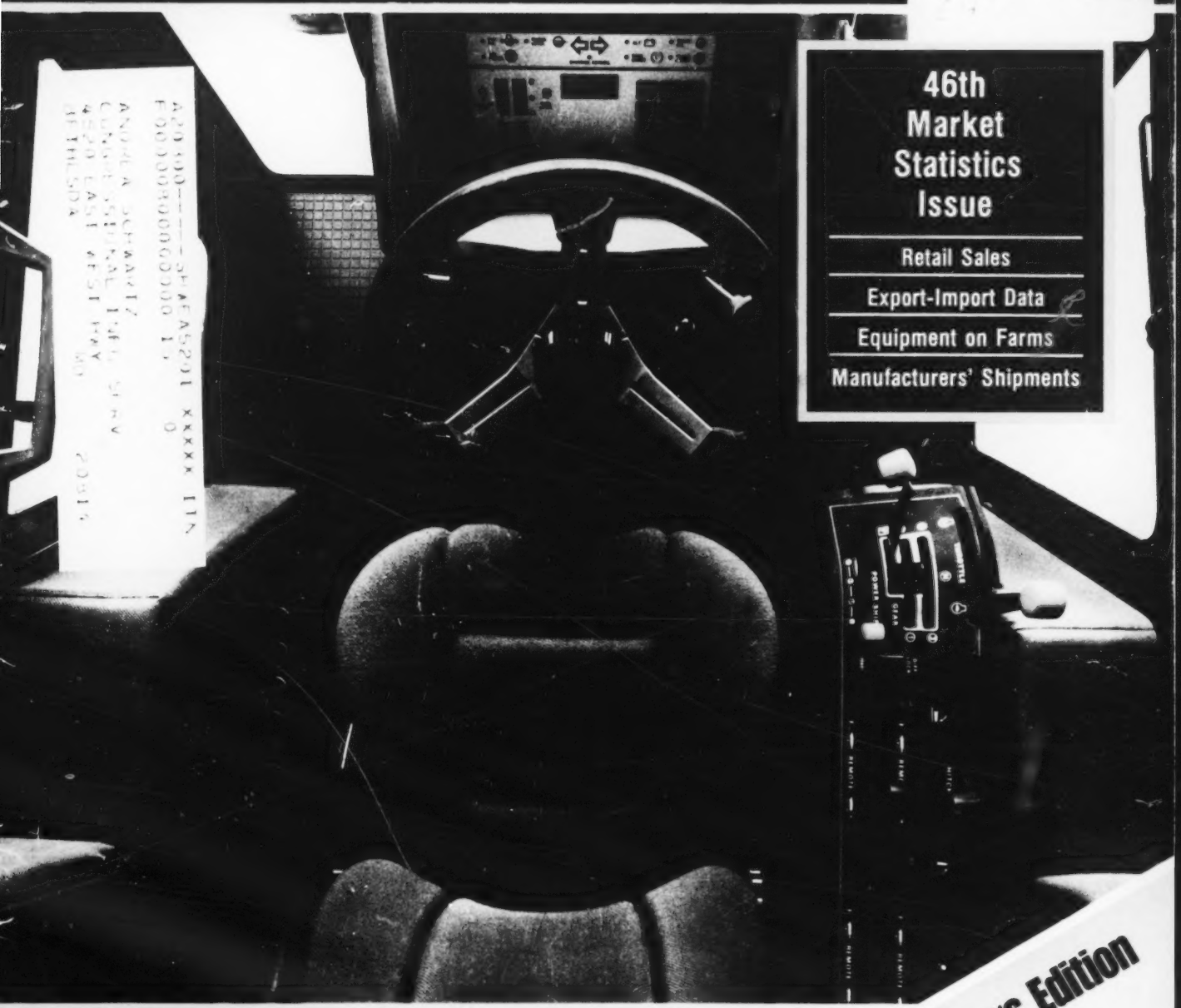
The business magazine of the farm & industrial equipment industry

November 1983

FOUR DOLLARS

Implement & Tractor



46th Market Statistics Issue

- Retail Sales
- Export-Import Data
- Equipment on Farms
- Manufacturers' Shipments

Manufacturers Edition

Suppliers to the Industry

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Implement &Tractor

The business magazine of the farm & industrial equipment industry

November 1983 • Vol. 98 • No. 13

46th Annual Statistics Issue

Machines on Farms—1983

20: Motor Vehicles and Specified Machines on Farms, 1927-1983.
22: Principal Machines on Farms.

Retail Sales

34: Retail Sales of Farm Wheel Tractors by PTO Horsepower and State, 1982.
36: Retail Sales of Selected Farm Equipment, 1982.

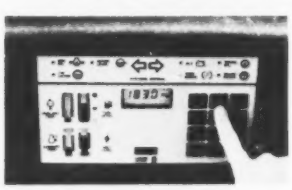
Exports and Imports

38: Wheel Tractor Imports by Horsepower and Country of Origin, 1981, 1982, Jan.-June, 1983.
40: Imports by Value and Country of Origin, 1978, 1979, 1980, 1981, 1982, Jan.-June, 1983.
42: Imports of Farm Equipment by Product, 1981, 1982, Jan.-June, 1983.
44: Exports of Farm Equipment by Type of Product, 1981, 1982, Jan.-June, 1983.
46: Exports of Farm Equipment by Value and Country of Destination, 1981, 1982, Jan.-June, 1983.

Farm Equipment Shipments

48: Wheel Tractors, Attachments and Parts, Value of Shipments, 1978-1983.
48: Farm Machinery and Garden Equipment, Attachments and Parts, Value of Shipments, 1978-1982.
50: Shipments of Farm Machines and Equipment (in units), 1978-1982.

10: **Computer Management.** A look at management help available from in-house computers, and the money and effort a dealer must put out to get a working system.
12: **Shop Bonus Pay Plan.** The lubricant that keeps a service department profitability program moving smoothly.
14: **Case: the 94s.** A completely new series of two-wheel-drive tractors is unveiled for J I Case dealers.



On the cover... As the horsepower boom in the tractor market has leveled off, manufacturers have turned to more emphasis on high-tech features. This instrumentation, on a new J I Case 94 series tractor, connects with an onboard computer.

DEPARTMENTS

I&T Update 2
Editor's Notebook 3
Auction Prices 4
New Literature 9
Industry in Motion 58
What's New 62
Classified Ads 66
Index to Advertisers 66
Brown Pages 69

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I&T Update

September: Big, Small Tractor Sales Rose

Retail unit volume improved in September on tractors under 40 horsepower, on two-wheelers over 140 hp and on over-200-hp four-wheelers. Other brackets and other products presented glum news, according to the flash report of the Farm & Industrial Equipment Institute.

Things are better than we thought! The FIEI has issued a corrected August flash report showing that over-140-hp tractors had a 28 per cent sales improvement rather than the 6 per cent decline reported earlier.

Unit Retail Sales

	September			January-September		
	1983	1982	Pct. Change	1983	1982	Pct. Change
Farm Wheel Tractors:						
2-wheel drive						
Under 40 hp	3,362	2,840	+18.4	37,067	34,618	+ 7.1
40-99 hp	2,936	3,744	(21.6)	29,311	31,978	(8.3)
100-139 hp	866	1,339	(35.3)	10,684	14,496	(26.3)
140 hp and over	1,066	780	+36.7	8,929	7,854	+13.7
Total 2-wheel drive	**8,230**	**8,703**	**(5.4)**	**85,991**	**88,946**	**(3.3)**
4-wheel drive						
under 200 hp	168	218	(22.9)	1,364	2,343	(41.8)
200 hp and over	339	298	+13.8	2,026	2,729	(25.8)
Total 4-wheel drive	**507**	**516**	**(1.7)**	**3,390**	**5,072**	**(33.2)**
Total All Tractors	**8,737**	**9,219**	**(5.2)**	**89,381**	**94,018**	**(4.9)**
S-P Combines	1,486	1,820	(18.4)	8,177	9,209	(11.2)
Balers (200-lb. bales)	534	712	(25.0)	8,309	7,875	+ 5.5
Forage Harvesters (shear-bar type)	701	886	(20.9)	3,094	3,718	(16.8)
Mower-Conditioners	713	1,031	(30.8)	12,953	12,308	+ 5.2

Deere to Sell ADS Software To Its Dealers

Deere & Co. and Applied Data Systems, Inc., Scottsdale, Ariz., have reached a deal by which Deere will market a turnkey computer system to its dealers using ADS software.

Hans Ager, president of ADS, said the agreement is worth $10 million over five years. ADS will be involved at the outset of the project, he said, to provide installation, training and support to Deere.

The software will be marketed through Deere's Dealer Services Dept. The applications will be made available on Texas Instruments Business Systems and IBM System/36 computers. Installations, beginning this month, will accelerate to 150 to 200 a year, according to ADS.

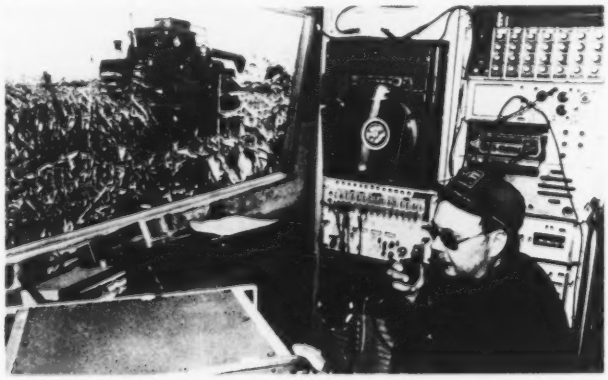
Massey Talks About Combine It's Testing

Massey-Ferguson has released some information about a developmental combine, which, it claims, is averaging 25 per cent more productivity than comparable standard models. Dick Jones of MF's Electronic Center, says it is equipped with "several microcomputers, a combine information center, and a sophisticated electronics system."

The four main physical systems on it are: forward speed control, which adjusts automatically to varying crop densities; automatic header height systems more sensitive than contemporary ones; an operator information center to display harvesting performance results and grain loss figures; and an automatic guidance system that steers the combine by measuring the position of the table head in relation to the crop.

Jones says the experimental unit is "some few years from the market."

The view is of a mobile data collection lab during field tests. Information comes from 30 sensors on the combine.



Irv Aal Moves From New Holland To IH Ag Group

Irvin E. Aal has joined International Harvester's Agricultural Equipment Group as senior vice-president in charge of product management, engineering, marketing and sales, according to Jack D. Michaels, group president.

Aal had been vice-president and general manager of Sperry New Holland's North American Div. and had been with that company for 21 years. Other recent assignments for New Holland had been director of marketing for the European Div. (1979) and vice-president of worldwide marketing and public affairs (1980).

Briefly...

Deutz Corp.'s Ag Equipment Div. is testing all-wheel-drive tractors with both front and rear three-point hitch and pto at several locations in North America, the company says. According to Deutz, such front and rear mounting of equipment is common in Germany.

International Harvester has closed its Canton, Ill., plant, which made farm equipment parts. Operations have been shifted to plants in Hamilton, Ont., and East Moline, Ill.

Prior to the Winter Meeting of the American Society of Agricultural Engineers at Chicago's Hyatt Regency Dec. 13-16, two major conferences are scheduled. One is "Agricultural Electronics, 1983 and Beyond," Dec. 11-13. Registration is $135 in advance, $150 at the conference. The other is "Technical Sales Management and Forecasting," Dec. 12. Registration is $115 ($95 for ASAE members). For more information, contact Cathy Ziegert, ASAE, 2950 Niles Rd., St. Joseph, Mich. 49085, telephone 616/429-0300.

Ford Tractor has established a national agricultural women's council made up of representatives from 10 leading farm organizations. According to J.N. Chuchman, North American marketing manager, "The council will be the communications link between Ford tractor executives and women in agriculture."

Editor's Notebook
(continued)

Dittamore's idea, actually) strikes you as full of holes, too risky, dumb, impossible or whatever, then try something else.

Hook your in-house computer up with the farmer's table-top computer by phone so he can order parts from his house at 11 p.m. Sunday and get delivery by Monday noon. If that's just too fanciful, then design a co-ordinated operation in which you telemarket parts and put a parts van into the countryside. Or open your own little parts outlet in that tiny hamlet 30 miles down the road and take some business away from those new competitors.

Or don't do any of those things. But for Pete's sake, don't just sit there. **Do something.**

How Devoutly Do You Read The Book of Numbers?

For some people, the arrival of a publication's annual statistical issue is guaranteed to produce a glaze over the eyes worthy of a Winchell's donut. For others, the heartbeat quickens. Business stops while they go through the pages.

Well, whichever camp you're in, here's I&T's 46th Annual Statistical Issue. Over the years, I have become very fond of industry statistics as I have developed an understanding of what they actually represent. A baseball fan loves the game's statistics because he can visualize that they deal with flesh-and-blood action—guys sliding into second, curve balls nipping the edge of the plate, line shots off the Wrigley Field vines.

And for many of us, the numbers of this business tell other stories of human endeavor. Changes in export and import numbers, increases and decreases in retail sales, or even the constancy of equipment on farms are all records of human effort in this vital industry.

Consider, just for example, manufacturers' shipments of corn heads. "Shipments" means completed products leaving the factory gate. Retail sales are something else. Anyway, the industry shipped 18,000 corn heads in 1978; 20,000 in 1979; 14,600 in 1980; 17,100 in 1981 and—pow—7,200 last year! It's very reflective of an industry that has become overloaded with inventory of this product.

When it comes to export and import numbers, the stories told by the numbers may be a little bit colored by this fact: Since there is no import tariff on farm equipment in most nations of the world, it may be of advantage to some importers to call something "farm equipment" on the official documents. If it gets past the customs agent, they don't pay duty—and data for that particular product are blurred a bit.

For instance, the numbers indicate that the U.S. exported *$93 million* in agricultural spray equipment, including parts, to Saudi Arabia in the first half of 1983. Since there were only 1,199 *units* included, we're looking at a huge quantity of parts. Yes, I know about the existence of some massive agricultural projects in that nation, but since they brought in only $17 million in U.S. tractors and tractor parts in the same period, I'm skeptical about that $93 million figure.

Nevertheless, the numbers in our 46th Market Statistics Issue provide the trend information that many, many readers need. "How many tractors *are* there on farms in Illinois?" asks the researcher. He needs to know because his company markets certain tractor attachments. "How many tractors came in from Italy?" asks another, trying to get a bead on what his competition has been doing.

And for others, there's simply the interest of the industry numbers buff. I'm one of them and so are many of you. Welcome.

AUCTION PRICES OF USED EQUIPMENT

An exclusive I&T monthly report of actual prices paid recently at these leading national wholesale auctions.

Asterisk beside tractor price indicates highest bid offered on tractors which were not sold.

JONES FARM EQUIPMENT CO. Dothan, Alabama September 13, 1983

ALLIS-CHALMERS TRACTORS
D17, 1962 (Rough) 550
G, 1949 (Fair) 850*

DAVID BROWN TRACTORS
990 diesel, 1966 (Fair) 750
990 diesel, 1966 (Fair) 685

MASSEY-FERGUSON TRACTORS
1085 diesel, 1977 (Fair) 4250
1080 diesel, 1971 (Rough) 1800
1080 diesel, 1970 (Fair) 3350
1080 diesel, 1970 (Fair) 2800
285 diesel, 1978 (Good) 6550
245 diesel, 1979 (Good) 6000
240 diesel, (Excellent) 7750*
203, Idr., 1964 (Good) 3200
175 diesel, 1970 (Good) 3500
3165 diesel, 1968 (Rough) 1725*
165 diesel, 1968 (Good) 3300
165 diesel, 1967 (Good) 3600
165 diesel, 1967 (Good) 3550*
165 diesel, 1966 (Fair) 2700
150 diesel, 1965 (Excellent) 3600
135, 1975 (Fair) 2600
135, 1972 (Excellent) 3500
135, 1970 (Good) 2900*
135, 1970 (Excellent) 3800*
135 diesel, 1969 (Excellent) 3500
135 diesel, 1968 (Good) 3200*
135 diesel, 1967 (Fair) 2650*
135, 1968 (Rough) 1700*
135 diesel, 1968 (Excellent) 4200
65 diesel, 1964 (Rough) 1125
65 diesel, 1963 (Good) 1800*
50, 1959 (Fair) 1425
35, 1963 (Rough) 1150*
35 diesel, 1962 (Excellent) 2450
35, 1962 (Good) 2000
35 diesel, 1962 (Fair) 1550
35, 1960 (Good) 1850
35, 1956 (Good) 2000*
TO30, 1953 (Good) 950*

FORD TRACTORS
9600 diesel, 1975 (Rough) 3350
8000 diesel, 1969 (Good) 3900
7000 diesel, 1975 (Fair) 3650
7000 diesel, 1975 (Good) 5400
5600 diesel, 1976 (Good) 5750*
5000 diesel, 1973 (Good) 4256*
5000 diesel, 1972 (Good) 4600
5000 diesel, 1973 (Good) 4800
5000 diesel, 1972 (Excellent) 5100*
4600 diesel, 1977 (Excellent) 7600
4000 diesel, 1974 (Excellent) 5100
4000 diesel, 1966 (Fair) 2375
3000 diesel, 1974 (Excellent) 4100*
3000 diesel, 1974 (Good) 3100
3000 diesel, 1969 (Rough) 1800
3000 diesel, 1968 (Good) 3100*
3000 diesel, 1968 (Good) 3200*
3000, 1966 (Good) 2850
3000 diesel, 1966 (Rough) 2300
3000 diesel, 1969 (Good) 3150
2000, 1963 (Rough) 1200*
Sup. Maj. diesel, 1963 (Rough) 1350
961, 1960 (Fair) 1250
841, 1958 (Rough) 900
861 diesel, 1958 (Excellent) 2750
641, 1960 (Good) 2200
640, 1955 (Good) 1950
Sup. Dexta 1963 (Good) 2150
Dexta, 1959 (Fair) 900
8N, 1952 (Good) 1550
8N, 1951 (Good) 1700
8N, 1951 (Good) 1590
8N, 1950 (Good) 1600*
8N, 1950 (Good) 1650
8N, 1950 (Good) 1500
8N, 1948 (Fair) 1150

INTERNATIONAL HARVESTER TRACTORS
656 diesel, 1970 (Fair) 3500
656 diesel, 1968 (Fair) 3100*
656 diesel, 1966 (Rough) 2450*
655 diesel, (Rough) 1150
574 diesel, 1973 (Good) 3800*
404, 1964 (Good) 1700
B275, 1958 (Fair) 1000
200, 1955 (Rough) 650
200, 1955 (Rough) 600
M, 1944 (Rough) 310
Sup. A, 1948 (Good) 850*
185 Cub Loboy, mo., 1975 (Good) 2000*
Cub, cult., plt., plow, 1949 (Good) 1150

JOHN DEERE TRACTORS
5020 diesel, 1968 (Rough) 2350
4630 diesel, 1976 (Excellent) 10,500

(Continued on page 60)

Write In (4) on Reply Card——→

Motor Vehicles and Specified Machines on U.S. Farms and Average Prices of Wheel Tractors, January 1, Designated Years[1]

Year	Tractors (exclusive of steam & garden)[2] Thousands	Motor Trucks Thousands	Grain Combines Thousands	Corn Pickers and Picker Shellers Thousands	Pick-up Balers Thousands	Field Forage Harvesters Thousands	Garden Tractors and Motor Tillers[3] Thousands	Wheel Tractors Wholesale Prices[4] Per Unit Dollars	Horsepower Dollars
1927	693	662	.....	.....	.....	.....	.....	.....	.....
1928	782	753	.....	.....	.....	.....	.....	.....	.....
1929	827	840	.....	.....	.....	.....	.....	.....	.....
1930	920	900	61	50	.....	.....	.....	.....	.....
1931	997	920	.....	.....	.....	.....	.....	.....	.....
1932	1,022	910	.....	.....	.....	.....	.....	.....	.....
1933	1,019	865	.....	.....	.....	.....	.....	.....	.....
1934	1,016	875	.....	.....	.....	.....	.....	.....	.....
1935	1,048	890	.....	.....	.....	.....	.....	.....	.....
1936	1,125	923	.....	.....	.....	.....	.....	.....	.....
1937	1,230	990	.....	.....	.....	.....	.....	.....	.....
1938	1,370	1,042	.....	.....	.....	.....	.....	.....	.....
1939	1,445	1,020	.....	.....	.....	.....	.....	.....	.....
1940	1,545	1,047	190	110	.....	.....	.....	.....	.....
1941	1,675	1,095	225	120	.....	.....	.....	.....	.....
1942	1,885	1,160	275	130	25	.....	.....	.....	.....
1943	2,100	1,280	320	138	31	.....	.....	$ 579	$ 21
1944	2,215	1,385	345	146	34	.....	.....	$ 658	$ 24
1945	2,354	1,490	275	168	42	20	68	$ 665	$ 25
1946	2,480	1,550	420	203	54	25	80	$ 733	$ 28
1947	2,613	1,700	465	236	65	30	122	$ 783	$ 30
1948	2,821	1,900	535	299	90	45	159	$ 890	$ 33
1949	3,123	2,065	620	372	135	60	192	$ 994	$ 35
1950	3,399	2,209	714	456	196	81	216	$ 1,073	$ 37
1951	3,678	2,310	810	522	240	102	242	$ 1,234	$ 42
1952	3,907	2,410	887	588	298	124	268	$ 1,297	$ 42
1953	4,100	2,520	930	630	345	148	296	$ 1,359	$ 39
1954	4,243	2,610	965	660	395	175	315	$ 1,513	$ 39
1955	4,345	2,675	980	688	448	202	332	$ 1,554	$ 39
1956	4,480	2,707	1,005	715	505	220	353	$ 1,682	$ 41
1957	4,570	2,745	1,015	740	560	240	375	$ 1,842	$ 41
1958	4,620	2,775	1,030	755	600	258	400	$ 2,111	$ 46
1959	4,673	2,800	1,045	775	645	270	425	$ 2,189	$ 48
1960	4,688	2,834	1,042	792	680	291	450	$ 2,338	$ 49
1961	4,743	2,850	980	740	685	291	468	$ 2,578	$ 50
1962	4,763	2,885	960	730	703	300	485	$ 2,819	$ 51
1963	4,778	2,925	940	720	718	307	500	$ 3,046	$ 53
1964	4,786	2,970	920	705	734	312	513	$ 3,443	$ 53
1965	4,787	3,030	910	690	751	316	699	$ 3,541	$ 56
1966	4,783	3,017	888	686	752	316	725	$ 3,886	$ 58
1967	4,786	3,009	867	680	748	319	750	$ 4,257	$ 62
1968	4,766	3,016	847	673	739	321	770	$ 4,709	$ 66
1969	4,712	3,004	820	657	725	314	790	$ 4,976	$ 71
1970	4,619	2,978	790	635	708	304	805	$ 5,560	$ 76
1971	4,562	2,985	760	629	698	309	815	$ 6,190	$ 80
1972	4,509	2,993	725	625	687	315	825	$ 6,486	$ 84
1973	4,477	3,006	703	618	680	324	835	$ 6,953	$ 85
1974	4,478	3,020	685	618	677	332	850	$ 7,294	$ 86
1975	4,463	3,032	666	615	666	337	870	$ 8,459	$ 91
1976	4,434	3,043	647	610	642	342	890	$11,220	$112
1977	4,381	3,052	630	605	614	346	905	$12,692	$124
1978	4,350	3,054	615	600	595	345	917	$13,431	$144
1979	4,990	3,555	664	694	769	376	1,060	$16,512	$149
1980	4,960	3,566	677	690	761	381	1,075	$18,139	$166
1981	4,925	3,577	690	685	752	386	1,085	$23,308	$199
1982	4,855	3,585	698	680	742	388	1,090	$25,941	$204
1983	4,815	3,594	703	674	732	390	1,090	$33,647	$234

[1]SOURCE: Reports of the USDA and the Bureau of the Census. After 1959, Alaska and Hawaii are included. On-farm data after 1970, except 1975 and 1979, are estimated by I&T.
[2]Consists of Wheel and Crawler Tractors only after 1944. Prior to 1945 some Garden Tractors may have been included but the number was small.
[3]Motor Tillers included after 1964.
[4]Estimated at wholesale level by dividing **Value of Manufacturers' Shipments** by **Units Shipped** and by **Maximum Belt Horsepower**, data are published in "Current Industrial Reports" of the Bureau of the Census.
Note: Data from the 1978 Census (Jan. 1, 1979 above) and later years, reflect changes in data collection, resulting in improved coverage by the Census and are not fully comparable with earlier years.

Principal Machines on Farms – 1983

STATE	WHEEL AND CRAWLER TRACTORS						TRACTOR MOLDBOARD PLOWS	
	1969 Census Number	1964 Census Number	1969 Census Number	1974 Census Number	1978[1] Census Number	Estimated July 1, 1983 Number	Estimated July 1, 1958 Number	Estimated July 1, 1983 Number
Maine	17,793	16,290	14,252	13,493	15,064	15,300	12,400	8,870
New Hampshire	6,605	6,253	4,953	4,989	5,584	6,100	4,600	2,770
Vermont	16,669	16,333	15,227	14,706	16,322	16,140	10,200	9,660
Massachusetts	12,068	11,575	9,537	9,341	10,902	11,500	8,800	5,930
Rhode Island	1,651	1,687	1,359	1,359	1,684	1,720	1,000	830
Connecticut	11,219	9,963	8,679	7,924	9,169	9,230	7,700	5,460
New York	138,670	136,304	122,645	118,313	128,248	127,800	107,000	79,500
New Jersey	24,726	22,042	19,984	19,324	22,991	22,650	21,500	17,000
Pennsylvania	144,759	144,149	126,810	124,251	142,844	144,500	118,600	98,300
Delaware	8,259	7,992	7,555	7,631	8,720	8,660	6,700	6,480
Maryland	37,291	37,203	34,174	34,705	40,699	40,900	30,500	28,200
NORTHEAST	**419,710**	**409,791**	**385,175**	**356,036**	**402,227**	**404,500**	**329,000**	**263,000**
Ohio	204,681	199,694	194,962	188,580	205,972	199,200	161,000	162,200
Indiana	186,853	181,086	174,055	167,382	183,002	177,000	149,000	144,000
Illinois	290,002	287,480	275,203	272,093	285,773	281,400	210,000	186,000
Iowa	327,863	329,172	318,998	317,052	328,292	320,000	235,000	219,500
Missouri	191,512	198,095	201,513	189,672	205,572	198,400	135,000	150,400
CORN BELT	**1,200,911**	**1,195,527**	**1,164,731**	**1,134,779**	**1,208,611**	**1,176,000**	**890,000**	**862,100**
Michigan	169,782	169,920	152,741	143,569	157,697	150,000	139,000	131,000
Wisconsin	234,387	247,427	229,752	237,457	258,119	256,100	171,000	168,100
Minnesota	275,833	284,887	258,614	260,535	282,533	278,400	210,000	185,700
LAKE STATES	**680,002**	**702,234**	**641,107**	**641,561**	**698,349**	**684,500**	**520,000**	**484,800**
North Dakota	121,039	122,056	118,069	123,072	121,966	121,200	84,000	70,200
South Dakota	115,639	120,100	111,532	114,456	112,782	109,500	84,000	70,300
Nebraska	175,254	180,423	166,098	170,423	177,691	176,200	108,000	97,000
Kansas	173,651	174,185	163,180	161,276	160,479	158,100	123,000	97,800
GREAT PLAINS	**585,764**	**596,764**	**558,879**	**569,317**	**572,918**	**565,000**	**399,000**	**335,300**
West Virginia	21,995	23,926	23,842	23,265	27,951	27,900	15,400	18,200
Kentucky	103,415	118,404	137,105	129,069	164,862	160,000	71,000	104,500
Tennessee	97,800	108,319	122,528	110,941	130,031	124,700	43,000	65,900
Virginia	75,143	78,989	79,347	76,121	90,284	88,200	52,000	62,500
North Carolina	140,639	149,850	150,825	130,140	152,917	141,800	57,600	72,500
APPALACHIAN	**438,992**	**479,488**	**513,647**	**469,536**	**566,045**	**542,600**	**239,000**	**323,600**
South Carolina	48,637	50,931	50,115	45,321	53,627	51,300	9,200	13,300
Georgia	89,392	89,049	84,366	77,067	85,049	82,900	23,500	33,700
Florida	35,820	41,295	42,958	44,192	57,226	61,000	12,300	20,300
Alabama	67,559	71,925	75,069	68,521	75,398	72,700	20,500	25,200
SOUTHEAST	**241,408**	**253,200**	**252,508**	**235,101**	**271,300**	**267,900**	**65,500**	**92,500**
Mississippi	84,425	90,347	88,677	76,808	80,964	77,200	29,700	32,500
Louisiana	53,229	60,618	63,194	55,933	64,337	63,200	15,400	22,700
Arkansas	83,852	90,993	86,977	78,083	89,421	87,700	41,900	50,300
DELTA STATES	**221,506**	**241,958**	**238,848**	**210,824**	**234,722**	**228,100**	**87,000**	**105,500**
Oklahoma	102,323	101,605	102,397	91,661	105,795	101,500	74,000	82,100
Texas	268,233	269,519	282,088	251,687	280,102	274,000	74,500	90,300
SOUTHERN PLAINS	**370,556**	**371,124**	**384,485**	**343,348**	**385,897**	**375,500**	**148,500**	**172,400**
Montana	59,510	61,832	58,729	58,457	55,941	58,300	30,500	28,000
Idaho	56,961	58,607	54,091	55,419	55,392	59,800	40,000	37,300
Wyoming	20,737	21,596	20,925	20,801	19,756	19,800	15,400	14,650
Colorado	64,051	63,906	59,112	58,091	59,959	60,800	34,000	28,500
New Mexico	17,146	17,919	15,998	17,021	17,546	18,120	11,300	8,700
Arizona	13,443	13,747	12,136	13,812	12,749	14,500	4,200	3,450
Utah	21,803	22,256	20,128	21,110	22,206	23,400	17,500	15,500
Nevada	5,297	5,557	5,318	5,515	5,453	5,780	3,100	2,700
MOUNTAIN STATES	**258,948**	**265,420**	**246,437**	**250,226**	**249,002**	**260,500**	**156,000**	**138,800**
Washington	63,114	65,813	58,600	59,542	58,190	67,700	42,000	40,300
Oregon	56,732	58,741	51,223	52,651	52,283	59,100	44,000	37,900
California	147,390	142,812	138,914	140,393	136,256	164,600	70,000	67,800
PACIFIC	**267,236**	**267,366**	**248,737**	**252,586**	**246,729**	**291,400**	**156,000**	**146,000**
TOTAL	**4,684,852**	**4,782,872**	**4,614,554**	**4,463,314**	**4,835,800**	**4,796,000**	**2,990,000**	**2,924,000**

[1]Only wheel tractors are included in the 1978 Census.

Principal Machines on Farms – 1983

STATE	COMBINES[1] 1964 Census Number	1969 Census Number	1974 Census Number	1978 Census Number	Estimated July 1, 1983 Number	CORN HEADS FOR COMBINES[2] 1969 Census Number	1974 Census Number	1978 Census Number	Estimated July 1, 1983 Number
Maine	875	218	242	415	420	120	141	192	190
New Hampshire	27	8	5	18	15	65	55	64	55
Vermont	344	113	87	170	160	175	238	375	400
Massachusetts	70	34	35	47	45	84	103	113	115
Rhode Island	20	5	7	15	15	21	10	23	20
Connecticut	77	40	15	86	70	92	85	157	150
New York	16,536	4,902	5,114	5,994	6,125	1,706	2,344	3,576	4,070
New Jersey	1,726	634	766	1,226	1,250	269	324	671	690
Pennsylvania	23,939	6,777	7,297	9,851	10,000	1,924	2,636	4,443	5,020
Delaware	1,780	979	1,127	1,351	1,390	566	681	1,035	1,060
Maryland	5,237	2,604	2,740	3,610	3,750	1,555	1,954	2,799	3,150
NORTHEAST	**50,631**	**16,314**	**17,435**	**22,783**	**23,240**	**6,577**	**8,571**	**13,448**	**14,920**
Ohio	50,291	20,805	26,009	33,996	35,700	11,892	17,515	24,522	27,400
Indiana	46,395	23,871	29,485	37,695	40,800	17,920	24,616	32,737	36,800
Illinois	80,857	48,116	55,085	63,650	69,500	37,649	46,362	56,213	62,500
Iowa	86,178	28,221	42,117	55,889	65,900	22,302	37,864	53,427	63,600
Missouri	44,535	24,208	26,253	34,029	35,700	16,112	18,278	23,544	24,500
CORN BELT	**308,256**	**145,221**	**178,949**	**225,259**	**247,600**	**105,875**	**144,635**	**190,443**	**214,800**
Michigan	41,360	13,053	14,649	19,474	20,400	4,306	7,098	11,333	13,150
Wisconsin	45,516	10,859	13,392	18,553	20,000	3,566	5,147	8,589	10,250
Minnesota	71,748	27,189	35,033	45,225	50,400	12,102	18,780	27,390	31,900
LAKE STATES	**158,624**	**51,101**	**63,074**	**83,252**	**90,800**	**19,974**	**31,025**	**47,312**	**55,300**
North Dakota	41,782	26,952	27,273	31,112	30,100	753	864	1,619	1,780
South Dakota	28,289	11,926	13,941	16,587	17,900	3,483	5,386	7,759	9,000
Nebraska	43,205	25,730	29,224	35,147	37,800	13,370	18,578	24,687	28,100
Kansas	59,813	41,601	41,871	47,650	48,200	6,533	8,038	9,282	9,900
GREAT PLAINS	**173,089**	**107,209**	**112,309**	**130,496**	**134,000**	**24,139**	**32,866**	**43,347**	**48,780**
West Virginia	1,020	245	307	479	480	147	199	265	300
Kentucky	9,737	4,565	6,329	10,760	11,750	3,196	4,390	8,510	9,150
Tennessee	11,537	5,773	6,843	10,952	11,750	2,458	2,734	5,634	5,800
Virginia	9,281	3,769	4,309	6,150	6,170	2,243	2,972	4,487	4,850
North Carolina	14,847	7,982	8,828	13,535	14,300	5,279	6,696	10,671	11,850
APPALACHIAN	**46,422**	**22,334**	**26,616**	**41,876**	**44,450**	**13,323**	**16,991**	**29,567**	**31,950**
South Carolina	7,085	4,483	4,706	6,609	6,770	1,803	2,285	3,931	4,150
Georgia	9,177	5,408	6,255	9,924	10,900	4,036	4,836	7,637	8,080
Florida	1,230	1,010	1,182	1,792	1,980	584	773	1,207	1,240
Alabama	4,806	3,423	3,988	6,958	7,460	1,635	1,858	3,468	3,580
SOUTHEAST	**22,298**	**14,324**	**16,131**	**25,283**	**27,110**	**8,058**	**9,752**	**16,243**	**17,050**
Mississippi	6,099	6,977	6,893	10,190	10,550	441	310	593	610
Louisiana	5,145	6,414	7,034	9,715	10,300	357	231	403	350
Arkansas	13,086	12,657	11,484	14,095	14,250	294	725	292	300
DELTA STATES	**24,330**	**26,048**	**25,411**	**34,000**	**35,100**	**1,092**	**1,266**	**1,288**	**1,260**
Oklahoma	21,668	14,909	14,797	18,006	17,800	457	511	900	930
Texas	31,355	21,223	19,394	23,742	23,300	1,743	1,858	3,684	4,020
SOUTHERN PLAINS	**53,023**	**36,132**	**34,191**	**41,748**	**41,100**	**2,200**	**2,369**	**4,584**	**4,950**
Montana	16,011	11,687	11,392	13,225	13,450	121	107	101	105
Idaho	11,330	7,639	8,113	10,180	10,600	202	252	458	490
Wyoming	2,962	1,523	1,690	2,017	2,110	112	149	180	210
Colorado	11,062	6,937	7,338	8,488	8,950	1,032	1,632	2,397	2,800
New Mexico	1,898	1,041	1,229	1,541	1,640	52	117	246	270
Arizona	559	412	530	513	590	25	23	70	70
Utah	2,421	1,442	1,442	1,748	1,800	134	196	186	200
Nevada	277	201	253	269	280	9	21	3	5
MOUNTAIN STATES	**46,520**	**30,882**	**31,987**	**37,981**	**39,420**	**1,687**	**2,497**	**3,641**	**4,150**
Washington	9,706	6,891	7,330	8,471	9,050	307	269	490	510
Oregon	8,372	5,107	5,266	6,442	6,630	167	106	185	180
California	8,366	5,619	5,373	6,492	6,500	633	696	1,085	1,150
PACIFIC	**26,444**	**17,617**	**17,969**	**21,405**	**22,180**	**1,107**	**1,071**	**1,760**	**1,840**
TOTAL	**909,637**	**467,182**	**524,072**	**664,083**	**705,000**	**184,032**	**251,043**	**351,633**	**395,000**

[1]The Census in 1964 included self-propelled and pull types. The Census in 1969, 1974, 1978 and the estimated number for July 1, 1983 cover only self-propelled combines.
[2]The Census in 1969 included only corn heads on class 1-5 farms ($2,500or more of income). The Census in 1974, 1978 and the estimated number for July 1, 1983 cover all farms.

Principal Machines on Farms – 1983

STATE	PICK-UP BALERS					FIELD FORAGE HARVESTERS[1]				
	1964 Census Number	1969 Census Number	1974 Census Number	1978 Census Number	Estimated July 1, 1983 Number	1964 Census Number	1969 Census Number	1974 Census Number	1978 Census Number	Estimated July 1, 1983 Number
Maine	3,339	2,446	2,255	2,770	2,660	998	712	914	1,341	2,100
New Hampshire	1,681	1,266	1,197	1,448	1,420	747	385	612	553	710
Vermont	5,796	4,171	3,975	4,434	4,280	2,358	1,542	2,328	2,798	3,800
Massachusetts	2,343	1,774	1,600	1,900	1,800	1,412	744	923	1,185	1,600
Rhode Island	250	171	172	209	200	233	88	122	138	170
Connecticut	1,971	1,604	1,313	1,715	1,520	1,561	788	777	831	1,020
New York	38,107	31,074	27,495	30,762	28,700	20,710	13,815	17,363	20,891	27,700
New Jersey	3,073	2,357	2,066	2,458	2,210	2,181	1,171	1,127	1,255	1,430
Pennsylvania	41,873	35,571	32,195	38,745	36,700	20,794	12,240	15,485	19,187	28,100
Delaware	664	609	628	618	590	475	245	422	282	380
Maryland	6,845	5,750	5,159	6,083	5,700	3,961	2,177	2,603	2,943	4,340
NORTHEAST	**105,942**	**86,793**	**78,055**	**91,142**	**85,780**	**55,430**	**33,907**	**42,678**	**51,404**	**71,350**
Ohio	43,607	40,101	36,137	39,170	36,200	11,759	7,788	9,757	11,419	16,800
Indiana	25,459	23,414	21,705	24,655	23,000	7,523	5,344	6,121	6,912	9,700
Illinois	38,163	33,291	29,822	31,487	28,800	16,295	10,130	11,333	11,905	15,500
Iowa	60,111	55,456	47,461	47,729	42,000	20,937	14,245	17,179	19,479	26,500
Missouri	36,265	38,929	38,487	44,886	43,000	9,315	6,884	7,430	8,786	9,900
CORN BELT	**203,605**	**191,191**	**173,612**	**187,927**	**173,000**	**65,829**	**44,391**	**51,820**	**58,501**	**78,400**
Michigan	31,502	26,915	23,897	26,039	23,700	15,077	8,986	11,682	12,986	17,150
Wisconsin	63,921	56,939	54,962	59,847	57,800	48,149	27,199	38,341	43,574	60,900
Minnesota	55,896	51,600	46,689	50,534	46,800	26,024	17,761	20,825	23,437	29,800
LAKE STATES	**151,319**	**135,454**	**125,548**	**136,420**	**128,300**	**89,250**	**53,946**	**70,848**	**79,997**	**107,850**
North Dakota	15,823	15,623	14,831	15,380	14,300	9,555	6,614	5,911	5,539	5,900
South Dakota	14,441	14,657	13,835	14,258	13,200	10,810	9,755	11,254	11,364	12,200
Nebraska	19,907	18,988	17,309	17,160	15,600	13,268	11,232	12,632	13,935	15,950
Kansas	28,086	27,464	26,846	29,550	28,100	17,035	11,712	10,651	10,844	11,550
GREAT PLAINS	**78,257**	**76,732**	**72,821**	**76,348**	**71,200**	**50,668**	**39,313**	**40,448**	**41,682**	**45,600**
West Virginia	7,362	8,013	7,444	10,051	9,400	1,155	1,143	1,478	2,134	2,650
Kentucky	21,476	24,121	23,536	32,538	31,100	3,157	3,621	4,400	8,269	9,600
Tennessee	15,234	17,686	17,090	22,597	21,900	3,002	2,953	3,602	5,579	6,720
Virginia	16,105	16,035	15,285	19,222	18,300	4,450	4,181	4,675	6,343	7,370
North Carolina	10,322	10,053	10,115	12,591	12,300	3,365	2,695	3,841	4,317	5,140
APPALACHIAN	**70,499**	**75,908**	**73,470**	**96,999**	**93,000**	**15,129**	**14,593**	**17,996**	**26,642**	**31,480**
South Carolina	4,468	3,857	3,719	4,763	4,630	1,139	887	1,075	1,381	1,770
Georgia	6,917	7,118	6,678	8,909	8,660	1,696	1,455	1,722	2,652	3,470
Florida	1,419	1,692	1,910	2,885	2,800	543	447	629	916	1,400
Alabama	6,231	7,227	7,662	10,393	10,300	1,233	1,250	1,513	2,158	2,660
SOUTHEAST	**19,035**	**19,894**	**19,969**	**26,950**	**26,390**	**4,611**	**4,039**	**4,939**	**7,107**	**9,300**
Mississippi	6,618	7,045	7,431	8,752	8,550	1,697	1,531	2,130	2,168	2,540
Louisiana	5,064	4,831	4,594	6,192	5,900	775	763	872	1,872	2,140
Arkansas	6,456	7,500	8,040	11,022	10,750	1,181	1,014	1,047	1,882	2,160
DELTA STATES	**18,138**	**19,376**	**20,065**	**25,966**	**25,200**	**3,653**	**3,308**	**4,049**	**5,922**	**6,840**
Oklahoma	12,965	14,246	14,432	20,032	19,700	2,820	1,872	1,740	2,420	2,770
Texas	15,737	18,208	18,534	28,338	28,600	4,643	3,556	3,215	5,451	6,250
SOUTHERN PLAINS	**28,702**	**32,454**	**32,966**	**48,370**	**48,300**	**7,463**	**5,428**	**4,955**	**7,871**	**9,020**
Montana	11,458	11,059	10,613	11,857	11,400	1,736	1,695	1,512	2,130	2,450
Idaho	13,072	12,057	12,048	13,043	13,000	2,696	1,907	2,048	2,435	2,920
Wyoming	4,259	4,357	4,383	4,572	4,570	1,086	924	995	1,267	1,550
Colorado	9,600	9,504	9,505	10,564	10,660	5,252	3,744	3,755	4,418	5,170
New Mexico	2,340	2,532	2,833	3,427	3,520	560	490	591	786	1,000
Arizona	1,001	860	1,018	1,081	1,100	556	281	314	341	520
Utah	6,389	5,887	5,957	7,171	7,200	1,989	1,378	1,560	1,909	2,330
Nevada	1,264	1,177	1,299	1,524	1,530	291	189	233	367	500
MOUNTAIN STATES	**49,383**	**47,433**	**47,656**	**53,239**	**52,980**	**14,166**	**10,608**	**11,008**	**13,653**	**16,440**
Washington	9,759	8,658	8,215	9,327	9,300	3,734	1,837	2,234	3,019	5,250
Oregon	8,007	7,218	7,195	9,207	9,140	2,419	1,532	1,496	2,718	3,780
California	8,389	6,829	6,435	6,832	6,410	3,189	1,666	2,006	2,628	4,690
PACIFIC	**26,155**	**22,705**	**21,845**	**25,366**	**24,850**	**9,342**	**5,035**	**5,736**	**8,365**	**13,720**
TOTAL	**751,035**	**707,940**	**666,007**	**768,727**	**729,000**	**315,541**	**214,568**	**254,475**	**301,144**	**390,000**

[1]The Census in 1964 and the estimated number for July 1, 1983 include shear-bar and flail types. The Census in 1969, 1974 and 1978 covered only shear-bar harvesters.

Principal Machines on Farms – 1983

STATE	POWER TRACTOR MOWERS (Cutter bar type only) Estimated July 1,1958 Number	POWER TRACTOR MOWERS (Cutter bar type only) Estimated July 1, 1983 Number	SIDE DELIVERY RAKES Estimated July 1, 1958 Number	SIDE DELIVERY RAKES Estimated July 1, 1983 Number	MOWER CONDITIONERS[1] 1974 Census Number	MOWER CONDITIONERS[1] 1978 Census Number	MOWER CONDITIONERS[1] Estimated July 1, 1983 Number
Maine	9,000	7,350	10,000	6,380	1,378	2,092	2,570
New Hampshire	4,400	3,360	5,000	2,710	605	1,029	1,230
Vermont	10,000	9,800	10,300	7,980	2,776	4,104	5,260
Massachusetts	5,800	4,370	6,000	3,820	1,048	1,568	1,850
Rhode Island	550	380	500	340	102	144	160
Connecticut	4,500	3,850	4,000	2,700	786	1,234	1,560
New York	55,000	61,000	61,000	50,400	18,701	26,674	33,400
New Jersey	7,000	4,980	8,000	4,330	1,636	2,518	2,600
Pennsylvania	60,000	67,500	67,000	53,200	20,428	30,551	35,300
Delaware	1,750	1,200	2,200	1,110	525	603	830
Maryland	14,000	12,500	13,000	9,760	3,614	4,944	5,750
NORTHEAST	**172,000**	**176,290**	**187,000**	**142,730**	**51,599**	**75,461**	**90,510**
Ohio	70,000	71,700	86,000	61,600	20,268	28,007	33,500
Indiana	64,000	56,300	71,000	45,300	12,503	16,162	20,600
Illinois	106,000	78,800	86,000	59,100	18,793	21,817	29,200
Iowa	115,000	117,500	127,000	99,000	19,636	26,631	34,200
Missouri	80,000	94,000	50,000	58,000	17,228	24,047	32,400
CORN BELT	**435,000**	**418,300**	**420,000**	**323,000**	**88,428**	**116,664**	**149,900**
Michigan	48,000	54,000	85,000	47,600	15,924	22,066	25,600
Wisconsin	93,000	116,000	115,000	99,200	36,232	52,723	66,300
Minnesota	96,000	107,500	108,000	96,500	22,979	32,101	38,200
LAKE STATES	**237,000**	**277,500**	**308,000**	**243,300**	**75,135**	**106,890**	**130,100**
North Dakota	42,000	45,000	26,000	25,300	5,971	6,395	8,500
South Dakota	44,000	52,400	31,000	25,800	4,445	5,715	6,260
Nebraska	61,000	62,000	41,000	39,300	9,225	15,128	15,350
Kansas	62,000	61,600	42,000	40,700	9,247	17,520	17,200
GREAT PLAINS	**209,000**	**221,000**	**140,000**	**131,100**	**28,888**	**44,758**	**47,310**
West Virginia	14,000	20,700	8,000	10,800	3,484	5,401	5,800
Kentucky	48,000	55,800	28,000	35,000	14,718	24,497	25,900
Tennessee	47,000	59,900	25,500	27,700	12,037	17,526	20,570
Virginia	28,000	36,800	25,500	27,000	8,714	13,099	15,800
North Carolina	27,000	36,100	15,000	18,000	6,824	10,767	11,300
APPALACHIAN	**164,000**	**209,300**	**102,000**	**118,500**	**45,777**	**71,290**	**79,370**
South Carolina	12,500	11,560	7,500	6,790	2,471	3,612	4,150
Georgia	23,000	20,500	12,000	12,050	6,383	9,451	9,950
Florida	7,500	4,350	2,200	2,170	4,000	7,114	5,970
Alabama	19,000	19,500	7,300	8,600	5,367	8,834	8,520
SOUTHEAST	**82,000**	**55,910**	**29,000**	**29,610**	**18,221**	**29,011**	**28,590**
Mississippi	21,000	25,000	5,000	11,200	5,282	8,041	8,220
Louisiana	12,000	12,600	6,000	7,070	4,421	7,396	6,400
Arkansas	24,000	24,100	12,000	11,900	5,521	8,653	10,350
DELTA STATES	**57,000**	**61,700**	**23,000**	**30,170**	**15,224**	**24,090**	**24,970**
Oklahoma	37,000	37,100	22,000	22,500	7,703	15,717	14,800
Texas	48,000	54,100	21,000	26,000	19,487	34,266	34,400
SOUTHERN PLAINS	**85,000**	**91,200**	**43,000**	**48,500**	**27,190**	**49,983**	**49,200**
Montana	23,000	24,700	15,000	15,800	3,205	7,513	4,910
Idaho	27,000	24,500	23,000	18,800	3,367	9,282	5,220
Wyoming	10,500	7,000	6,000	5,950	1,179	3,530	1,980
Colorado	24,000	18,300	25,000	16,700	2,712	7,449	4,260
New Mexico	8,000	5,380	8,000	4,820	1,005	2,451	1,480
Arizona	4,500	2,320	3,700	1,600	427	841	600
Utah	11,700	12,800	12,000	10,700	2,257	5,292	4,200
Nevada	2,300	1,800	2,300	1,720	384	1,286	540
MOUNTAIN STATES	**111,000**	**96,800**	**95,000**	**76,090**	**14,536**	**37,644**	**23,190**
Washington	27,000	24,550	16,000	15,400	4,218	8,536	6,670
Oregon	23,000	22,950	15,000	13,600	3,634	7,487	6,300
California	33,000	27,500	22,000	16,000	3,590	8,129	4,890
PACIFIC	**83,000**	**75,000**	**53,000**	**45,000**	**11,442**	**24,152**	**17,860**
TOTAL	**1,615,000**	**1,683,000**	**1,400,000**	**1,188,000**	**376,440**	**579,943**	**641,000**

[1]Does not include windrowers with conditioning rolls.

Principal Machines on Farms – 1983

STATE	POWER ELEVATORS Estimated July 1,1961 Number	POWER ELEVATORS Estimated July 1, 1958 Number	POWER ELEVATORS Estimated July 1, 1983 Number	Manure Spreaders Estimated July 1, 1983 Number	Corn and Cotton Planters Estimated July 1, 1983 Number	Gra'n Drills Estimated July 1, 1983 Number
Maine			5,400	3,420	350	930
New Hampshire			2,560	2,150	310	65
Vermont	1,200	12,000	8,200	6,840	1,730	350
Massachusetts			3,680	2,500	950	120
Rhode Island			520	300	110	35
Connecticut			4,290	2,600	1,110	90
New York	7,200	35,000	71,500	43,600	21,400	29,100
New Jersey	2,000	5,500	6,280	2,610	2,600	2,650
Pennsylvania	9,600	38,000	76,100	45,200	36,300	43,800
Delaware	500	2,000	4,020	1,900	2,300	2,200
Maryland	2,500	7,500	16,750	9,100	9,350	9,720
NORTHEAST	**23,000**	**100,000**	**199,300**	**120,220**	**76,510**	**89,060**
Ohio	27,000	68,000	130,600	61,000	69,500	69,500
Indiana	30,000	66,000	129,700	54,000	71,200	56,400
Illinois	61,000	110,000	197,900	79,000	103,800	71,000
Iowa	80,000	122,000	207,800	108,000	115,500	66,200
Missouri	15,000	41,000	92,500	60,500	55,000	57,300
CORN BELT	**213,000**	**407,000**	**758,500**	**362,500**	**415,000**	**320,400**
Michigan	14,000	45,000	92,700	39,900	42,000	56,000
Wisconsin	15,000	48,000	146,000	91,300	74,000	71,000
Minnesota	46,000	90,000	163,500	83,000	89,000	82,200
LAKE STATES	**75,000**	**183,000**	**402,200**	**214,200**	**205,000**	**209,200**
North Dakota	28,000	45,000	79,300	22,500	16,700	65,300
South Dakota	24,000	40,000	70,500	31,300	33,600	36,900
Nebraska	36,000	60,000	109,200	48,000	50,000	47,400
Kansas	25,000	55,000	116,500	40,300	24,500	77,200
GREAT PLAINS	**113,000**	**200,000**	**375,500**	**142,100**	**124,800**	**226,800**
West Virginia	500	3,000	7,000	9,100	5,770	4,050
Kentucky	2,500	10,000	27,100	30,000	42,600	12,450
Tennessee	1,000	6,500	16,700	22,000	57,500	15,600
Virginia	2,000	11,000	21,000	23,500	29,000	18,900
North Carolina	1,000	7,500	22,650	22,800	80,900	25,400
APPALACHIAN	**7,000**	**38,000**	**94,450**	**107,400**	**215,770**	**76,400**
South Carolina	300	2,000	5,150	4,250	34,200	13,100
Georgia	900	6,000	15,350	7,200	43,000	11,250
Florida	300	1,500	4,070	1,300	6,600	1,950
Alabama	500	4,500	12,620	4,800	47,000	7,900
SOUTHEAST	**2,000**	**14,000**	**37,190**	**17,550**	**130,800**	**34,200**
Mississippi	700	4,500	8,620	5,480	58,500	9,300
Louisiana	400	1,000	2,820	3,150	21,950	8,300
Arkansas	900	4,500	10,520	7,700	24,100	15,000
DELTA STATES	**2,000**	**10,000**	**21,960**	**16,330**	**104,550**	**32,600**
Oklahoma	6,000	12,000	28,050	10,000	10,300	36,200
Texas	9,000	23,000	44,650	18,900	61,800	56,500
SOUTHERN PLAINS	**15,000**	**35,000**	**72,700**	**28,900**	**72,100**	**92,700**
Montana	7,500	17,500	31,200	11,800	1,220	24,420
Idaho	3,100	13,300	27,250	14,700	2,950	17,800
Wyoming	700	2,500	5,600	5,050	1,070	4,750
Colorado	7,000	13,000	28,100	15,000	6,950	17,800
New Mexico	500	1,500	2,870	2,450	3,530	2,250
Arizona	100	700	2,010	1,050	2,150	1,650
Utah	700	5,000	11,220	8,150	1,900	6,300
Nevada	400	500	1,050	1,200	70	370
MOUNTAIN STATES	**20,000**	**54,000**	**109,300**	**59,400**	**19,840**	**75,340**
Washington	2,000	8,000	24,250	15,600	2,050	14,400
Oregon	3,000	8,000	19,550	13,700	1,280	13,500
California	4,000	13,000	26,100	16,100	10,300	10,400
PACIFIC	**9,000**	**29,000**	**69,900**	**45,400**	**13,630**	**38,300**
TOTAL	**479,000**	**1,070,000**	**2,141,000**	**1,114,000**	**1,378,000**	**1,195,000**